

The Performance of the Correlation Between the SECI Model and the Environmental Awareness of Binus Students for CB-Spiritual Development Subject

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ABSTRACT

As the environment has many big problems in Jakarta as the capital city, Binus University took part with a project called „environmental awareness socialization“ performed by students who studied CB-Spiritual Development subject (Binusian 2017) with raising their environmental awareness as one of the major project“s objective. They were doing the project using the SECI Model by Nonaka [1] whilst their environmental awareness was assessed pre and post the project. This research“ objective is to find the correlation between the performance of SECI Model implementation and the raising of Environmental Awareness post project using the quantitative method with 138 students as the research subjects with the data collection technique of questionnaire distribution. The questionnaire results are analyzed through a correlative analysis. The research results showed that there was a positive correlation between the implementation of the SECI Model and the environmental awareness behavior of the students.

Keywords: *The SECI Model, the environmental awareness, CB-spiritual development subject*

1. INTRODUCTION

As the environment has many big problems in Jakarta as the capital city, the Character Building Development Center (CBDC), a work unit for managing character building courses at Bina Nusantara University (or BINUS University), a private university in Jakarta and the biggest private university in Indonesia, was encourage to initiate environment-care programs. The environment-care programs are suitable with topics offered in Character Building (next abbreviated as CB) courses, one of them, which is CB-Spiritual Development. These CB courses are the general basic subjects required for all BINUS university students. The CB-Spiritual Development course is one of a series of four courses, which are CB-Self Development, CB-Spiritual Development, CB-Interpersonal Development, and CB-Professional Development.

These CB courses have a final project for each course/subject. This environment-care program has been set as part of the final project assignment for students of CB-Spiritual Development on the 2nd semester. One of the programs is being the Cleanliness Ambassadors of BINUS University by joining the social campaign of garbage disposal at high schools and local community groups at the local neighborhood levels in Jakarta and Tangerang areas. This

kind of final project was set to the CB- Spiritual Development because one of the criteria of a highly spiritual person is caring for the environment. For the CB courses' general objectives are to build good characters to the BINUS students, the environmental care character would like to be improved since the second CB so that in the last CB (CB-Professional Development), the students can improve another related character to be suited to the sustainable development, one of the topics in the CB-Professional Development.

The Cleanliness Ambassador program had the purpose of educating some of the 2nd-semester BINUS University students as well as the wider community in Jakarta to increase their awareness for environmental cleanliness by habituating to dispose the trash on the bin. This program, of course, has the objective to help the students in raising their environmental awareness as a part of good characters. To help them run the program, these students of CB-Spiritual Development were divided into several groups. One group consisted of maximum 10 students. Referring to Deporte and Lemaine (1988), Levine and Moreland (1998), and McPherson (1983) in Aronson [2], an ideal group should consist of 3 to 6 people [3]. As the definition of a group here is that 3 or more people are mutually interacting and depend on each other, in a way that they share the same needs and purpose so that they influence one to another, this program required each group to consist of 6-10 people. Each group was assigned to do the campaign at two high schools and a local community around BINUS University area within the radius of + 500 m, as well as at the BINUS University area. At the local community and BINUS University areas, each group also distributed flyers of the garbage disposal campaign. Besides to local communities and Binus University areas, each group of these students was required to reach wider society. Then they used social media to make the campaign to ease the reaching of that wider society.

To allow the students learn and adopt values of environmental awareness in running the project, and as the lecturer of the CB course, the author used a method of Knowledge Creation, which is the SECI (Socialization, Externalization, Combination, and Internalization) model of Nonaka [1] in supervising the group project. It was expected that by applying the SECI model students could mutually transfer knowledge. After the transfer of knowledge, the students were expected to absorb the new knowledge, so that they could share the new knowledge with other parties, either directly or indirectly. The knowledge learning experience could hopefully generate new perspectives of values for them to embrace so that these could also result in the new practice of behavior for them to implement.

The more intensive discussion in this regard was expected to strengthen the group cohesion so that better teamwork level could be established. According to Dion (2000), Friedkin (2004), Hogg (1993), and Holtz (2004) in [3], the group cohesion is the group quality that binds its members together and increases the affection among them. Binus University took part with a project called „environmental awareness socialization“ as an action to educate the society around Binus and the students as well. Before educating the society around Binus, who was done by several groups of the students, the students, called The Cleanliness Ambassador Program, must have the values of environmental awareness first. This program required each group of students to make some campaigns about “trash on bin” verbally and virtually. Verbally, each group was assigned to do the campaign at two high schools and a local community around BINUS University area within the radius of + 500 m, as well as at the BINUS University area. At the local community and BINUS University areas, each group also distributed flyers of the garbage disposal campaign. To have the values internalized, the students had to do this project using the SECI (Socialization, Externalization, Combination, and Internalization) model in a group, to transfer their knowledge about clean environment each other effectively as well as strengthen their teamwork competencies.

This study aimed to find the correlation between the performance of the students while doing the project using the SECI model and their environmental awareness, as one of the early steps to raise students' environmental awareness. Participants of this study were 138 undergraduate students who took CB-Spiritual Development subject (Binusian 2017) with this particular final project.

2. THEORETICAL FRAMEWORK

Whilst this Research's broad objective is to change students' behaviors to be more aware of our environment, there are several types of research which have quite similar objectives within this research. Most of these researches are about organizational changes caused by knowledge creations in their organizations. They are "Knowledge Creation Process and Firms' Innovation Performance: Mediating Effect of Organizational Learning" by [3], "Knowledge Creation, Organizational Learning and Their Effects on Organizational Performance" by Ramirez [4], and "Individuals' Interaction with Organizational Knowledge under Innovative and Effective Team Climates: A Multilevel Approach to Knowledge Adoption and Transformation" by Jinyoung Min [5]. These researches are not directed toward the behavior changes using any kind of knowledge creations, but certainly, can be used as this research references as they are similar.

2.1 The SECI Model

The SECI model (Socialization, Externalization, Combination, and Internalization) was first introduced by Nonaka [1]. It is originated from the Japanese tradition, especially Japanese intellectual tradition. The Japanese intellectual tradition has three distinctions: (1) oneness of humanity and nature; (2) oneness of body and mind; and (3) oneness of self and other. These traits have formed the foundation of the Japanese view of knowledge as well as the Japanese approach toward management practices. The first trait is related to Japan's intellectual tradition that knowledge means wisdom that is acquired from the perspective of the entire personality, while the Western's sense of knowledge is separated from human philosophical and epistemological development. The two major traditions of the first and the second trait have led the Japanese to value the interaction between self and other. While most Western views of human relationships are atomistic and mechanistic, the Japanese view is collective and organic [1].

SECI Model includes individual people, groups, and organizations. Rice & Rice (2003) said in Grzybowska [6] that the core behavioral assumption in the model is that knowledge creating companies continually encourages the flow of knowledge between individuals and staff groups to improve both tacit and explicit knowledge stocks.

Knowledge creation is a spiral process which allows for 4 types of knowledge conversion by:

socialization – is based on gaining knowledge by individual people – sharing the knowledge, specific experiences, cognitive models and patterns of behavior which are in force in a given group on the basis of face to face rule, there is a passing from individual to group hidden knowledge;

Externalization (self-expression) – is going from hidden knowledge to formal knowledge by transferring and formulating the hidden knowledge; such formalization results from the exchange and sharing of the individual knowledge within a group, it is going from group formal knowledge to group formal knowledge within many groups;

combination – is based on joining new and existing fragmentary elements of formal knowledge among various groups, a transition from formal knowledge to systematic formal knowledge occurs;

internalization – based on acceptance of the imposed knowledge as your own (including the attitudes, opinions, and norms); there is a transition from formal knowledge to hidden knowledge; as a result of internalization of heteronymous norms (which are set by individuals and which do not apply to them, i.e. the obligation of external authority or the authority of superior) the norms are transformed into autonomic norms (which are set by individuals who impose on themselves a certain type of behavior which does not need to be externally controlled) [6].

The four-stage spiral model abbreviated as SECI modes are used to depict four separate modes: socialization, externalization, combination, and internalization. The first point of this spiral is socialization, where the exchange of tacit knowledge at the individual level is used, without specifying any particular language, to create knowledge. The second one is the externalization mode where tacit knowledge is transformed into explicit knowledge to create knowledge. In the combination mode, dynamic knowledge is gained by pooling isolated and existing pieces of explicit knowledge into a holistic system structure. The final mode of the spiral is internalization, where individuals absorb this new explicit knowledge. Explicit knowledge is applied multiple times, enriching the tacit knowledge base by including it in habits and daily routines. The knowledge creation cycle continues along the spiral and jumps from the individual level to the organizational level when tacit knowledge is exchanged again. The SECI modes must be supported by two other elements- „ba“ and knowledge assets-to realize knowledge creation [1], [7].

2.2 The Environmental Awareness

Besides discussing the SECI model, this research's objective is also to know the environmental awareness of Binus students after doing the project using the SECI model, this research also using the theory about planned behavior to enhance the environmental awareness. The theory used in this research is based on Ajzen (1991) in Agwu [8] called the theory of planned behavior. The Theory of Planned Behaviour (TPB) states that an individual's behavioural beliefs, normative beliefs, and control beliefs respectively determine his/her attitude towards a given behaviour, subjective norm, and perceived behavioural control, which collectively influence the behavioural intention and actual behaviour of the individual when participatory decisions in an action are voluntary and under an individual's control.

This kind of awareness is highly needed to succeed the sustainable development goals, for seven of the seventeen goals of the sustainable development goals are related to the environment, they are: (1) clean water and sanitation, (2) affordable and clean energy, (3) sustainable cities and communities, (4) responsible consumption and production, (5) climate action, (6) life below water and the last is (7) life on land [9].

This study is specifically aimed to find out the correlation between the performance of Binus' students (Binusian 2017) in doing environmental awareness socialization final project in a team by using SECI Model and their behavioral changes to higher environmental awareness. The SECI Model was used considered that it is recognized as the main important contribution in the domain of knowledge management. This model, which consists of four sub-models, and all sub models or some of them, contribute to several successful knowledge creation cases in several organizations [3]. So the main reason for using this model is to find the correlation between this model and organizational changes.

This is one of the preliminary studies in a set of study with raising the environmental awareness of Binus students who were doing this project as the final study. Considering the objectives, this study was specifically using the Binusian 2017 who got the environmental awareness socialization project as the subject (respondents) of the study. The study was using quantitative research methods. Measured behaviors are indicators of the SECI Model, which consists of 24 questions describing the indicators for the four stages of the SECI Model: Socialization, Externalization, Combination, and Internalization adopted from the questionnaires in the article titled Knowledge Transfer in Software Engineering Education using the SECI Model by Ahmad [9].

After the reliability and validity test to 50 respondents, the questionnaires are distributed to 138 respondents from 14 departments, i.e: Information System, Design, Psychology, Industrial Engineering, Civil Engineering, Architecture, Management, Marketing Communication, etc. The indicators in the questionnaires were measured using the Likert scale with multiple variables. Indicator variable that is measured in a scale of frequency, the classification is subdivided into five types, namely: strongly agree (SS), agree (S), normal (N), disagree (TS), and strongly disagree (STS). Those five types of frequency are directly translated into numbers in the Likert scale, namely: SS (5), S (4), N (3), TS (2), and STS (1). Besides with questionnaires for SECI, we also measure the enhancement of environmental awareness of the students using the questionnaires about the awareness of solid waste management problems in their environment. Considering that we measure the enhancement, then we measure their awareness in the pre and post project execution.

The results of questionnaires from each respondent were processed using SPSS, using the measurement of the frequency of the five types of the Likert Scale for all respondents. After that, the results were processed to measure the correlation between the performance of the SECI Model and the environmental behavior pre and post project execution.

3. RESULT AND DISCUSSION

The results of reliability and validity tests are:

Stage Socialization (S) : reliable ($\alpha = 0,738$); stage Externalization (E) : reliable ($\alpha = 0,693$); stage Combination (C) : reliable ($\alpha = 0,66$); stage Internalization (I) : reliable ($\alpha = 0,725$). Corrected item total correlations: 0,295-0,581; and this means all indicators are valid (valid if corrected item total correlations are $> 0,250$).

Whilst the correlation between the SECI Model implementation and the Environmental Awareness of the respondents are shown on Table 1.

The results showed that the correlation of SECI model implementation and the environmental awareness of Binusian 2017 before (pre) the project are: S has a significant positive correlation with Pre Project Behavior (Sig. < 0.05). E has a significant positive correlation with Pre Project Behavior (Sig. < 0.05). C has a significant positive correlation with Pre Project Behavior (Sig. < 0.05). I have a significant positive correlation with Pre Project Behavior (Sig. < 0.05).

The results showed that the correlation of SECI model implementation and the environmental awareness of Binusian 2017 after (post) the project are: S has a significant positive correlation with Post Project Behavior (Sig. < 0.05). E has a significant positive correlation with Post Project Behavior (Sig. < 0.05). C has a significant positive correlation with Post Project Behavior (Sig. < 0.05). I have a significant positive correlation with Post Project Behavior (Sig. < 0.05).

Table 1. Correlation of SECI and Environmental Awareness.

	Pre Project Behaviour	Post Project Behaviour
Pearson Correlation	0.611	0.411
Sig. (2-tailed)	0.000	0.003
Pearson Correlation	0.405	0.371
Sig. (2-tailed)	0.003	0.008
Pearson Correlation	0.497	0.344
Sig. (2-tailed)	0.000	0.014
Pearson Correlation	0.501	0.377
Sig. (2-tailed)	0.000	0.007

This result showed that the SECI Model has succeeded in internalizing the knowledge about how important the putting the trash in the bin and keep our environment clean. Although the knowledge internalized has not proven to be the environmental value internalized in the students, caused by executing the project, it is just written that the sig value for pre and post project is below 0.05. But from this result, it is proven that the SECI Model applied made the students paid more attention to the cleanliness of the environment.

4. CONCLUSION

4.1 Conclusion

From the result and discussion of this research, we can say for the conclusion The SECI Model has a significant positive correlation with the pre and post project behavior. This can be inferred that the SECI Model implementation in the Binusian 2017 teamwork while doing the project gave a strong influence to form the environmental awareness behavior of Binus students, especially Binusian 2017 those who are doing the Cleanliness Ambassador Project.

4.2 Recommendation

This study has shown that the SECI Model can be applied in doing duties and tasks by teamwork since this model can be applied in teamwork, even leads to behavior changes. Then this model can be applied to other projects of CB subjects that need teamwork. Considering that all CB subjects aimed to modify students' characters, this model can be applied in all team assignments in CB subjects.

Before implementing the SECI Model or any other model of knowledge-creation, it will be good enough to do the feasibility studies about the whole team or organization. Further studies about the SECI Model or any other kind of knowledge-creation are still needed. Referring to Jinyoung Min [5] that "knowledge management system is a useful technical system that needs to be examined in order to better understand how knowledge is processed and learned in an organization", and "the social context in which takes place plays a crucial role in employees' behaviors" (Lamb and Kling (2003) in Jinyoung Min [5], the SECI Model and, maybe, any other model of knowledge management system or knowledge creation can be used to modify behavior.

Considering that this study is the first study using the SECI Model connected to the environmental awareness of Binus students, the using of this model can be applied to any projects in any subjects for Binus students. For BINUS has been implementing new strategies and new curriculum for CB subjects nowadays (i.e.: CB-Pancasila, CB-Civics, and CB-Religion), the SECI model or any models of knowledge creation was scientifically proven can be implemented, especially for topics related to the environmental or sustainable development education.

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